

HAIG (A.)

With the Author's Compliment.

11

SOME NOTES

ON THE

TREATMENT OF MORBUS CORDIS

BY

IODIDES AND OTHER DRUGS WHICH LOWER
THE BLOOD-PRESSURE.

BY

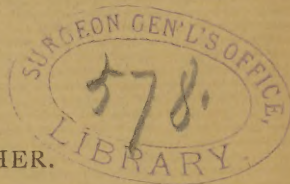
A. HAIG, M.D. (OXON.), F.R.C.P.

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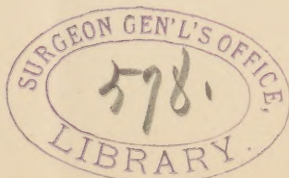


Some Notes on the Treatment of Mor-
bus Cordis by Iodides and other
Drugs which lower the
Blood-Pressure.

SO far as I can recollect the teaching of my student days, the treatment of morbus cordis seemed to consist of little else than the prescription of digitalis, strychnine, or iron, either singly or in combination, with perhaps an occasional dose of nitrite of amyl. Since that time, however, we have not only had to add a considerable number of more or less useful drugs to our list, but we have also, a more complete and workmanlike grasp of the physics and physiology of the circulation.

To-day there are quite a large number of heart or circulatory troubles in which the use of digitalis is not even thought of, or is considered only as a possible adjunct to other drugs; and, further, there are cases in which we know that, though the heart is apparently failing, digitalis may do absolute harm and make matters worse.

From this point of view it has seemed to me that one of the most useful remarks in Sir Wil-



liam Broadbent's well-known work on "The Pulse," published in 1890, is that on page 262, where, speaking of the pulse in kidney-disease, he says, "Greater service is often rendered to an overweighted heart by relieving it of work than by endeavoring to improve its strength;" and a few lines farther on he adds, "unless it [the heart] is completely worn out, there is a possibility that a diminution in the resistance may enable it to resume its command over the circulation."

Did time permit, I think I could show that there are a number of conditions in which kidney-disease takes no part, in which, nevertheless, far more good may be done by diminishing the work the heart has to do than by endeavoring to improve its strength with digitalis.

But be this as it may, it is to this side of the treatment of morbus cordis, by diminishing the resistance it has to overcome, that I wish to direct your attention to-night.

To a certain extent this is a very old observation, for it has long been recognized that rest in bed did as much for morbus cordis as any drugs; but here, again, the more recent treatment by exercise must have been a surprise to many, and seems at first sight almost a contradiction of previous experiences.

But when we come to look into the matter more closely, I think we shall see that the one effect common to the use of baths, exercises, iodides, opium, mercury, nitrites, ammonia, alcohol, ether, and other drugs is that they relax the arterioles and capillaries all over the body and thus lessen the resistance the heart has to overcome.

With regard to many of these drugs, I have already pointed out elsewhere* the way in which they produce this relaxation of the arterioles and capillaries; but that does not concern us just now.

In this connection I was much interested to see in the current number of the *Practitioner* a paper by Dr. John Broadbent and Sir William Broadbent on the treatment of morbus cordis by baths and exercises of the Schott system, in which, after considering the explanation of their action given by the authors of the system, they conclude that the baths act by dilating the vessels in the skin, and the exercises by dilating the vessels in the muscles; so that both, either separately or together, diminish the work of the heart.

It appears to me to be practically certain that this is the real explanation of their good effects, and that the writings of Dr. Bezley Thorne† and others have demonstrated in a very interesting manner the great and rapid effects on the position of the apex and the area of cardiac dulness which these changes of resistance produce. And where such effects are produced, we can no longer have any doubt of the enormous power which the resistances at the periphery have over the central organ of the circulation.

It is all very well to read Sir William Broadbent's statement (previous reference, page 153) that under certain conditions the peripheral arterioles may contract so completely as to bring the heart to a dead stand; but if you

* *Medico-Chi. Trans.*, vol. lxxvi. p. 113, and "Uric Acid," second edition, 1894.

† *Lancet*, 1894, vol. i. p. 1117.

watch for yourself the alteration of the apex and the area of dulness of the heart, as you keep the peripheral vessels dilated in renal disease or in other conditions of high tension, or listen to the different sounds made by the aortic valves under the two conditions, you will realize what these things are and what they mean for the heart far more completely than it is possible to do from any printed description.

Let any one who suffers from migraine listen over his aortic valves when the pain is severe and again when it has passed away, and he will never again doubt the effects of contracted arterioles on the work of the heart and the pressure in the aorta.

It is interesting to note in passing that baths and exercises which dilate the arterioles will promptly cure this headache, and that it passes away as soon as the dilatation of vessels is complete, just as it does under the influence of mercury, opium, or any other of the drugs mentioned above.

Similar observations may be made in mental depression associated with high blood-pressure, and in similar functional conditions up to Bright's disease itself; and in mental depression the good effects of exercise have been pointed out by Professor Lange, of Copenhagen, and others.

In thus speaking of the good effects of baths, exercises, and drugs, that dilate the arterioles and capillaries and lessen the work the heart has to do, we must not, I think, lose sight of the further fact that in dilating or allowing the dilatation of the capillaries all over the body they of necessity dilate those of the heart itself; so that they not only reduce the work it has to

do, but at the same time improve its interstitial circulation and its nutrition.

Before going on to the application of our knowledge to every-day work, I will show three sets of pulse tracings,—A showing the effects of exercise, B the effects of opium, and C the effects of iodides.

A, I think, speaks for itself, the difference between the fairly normal pulse at the top and the tracings below being very marked.

B has at the top the pulse of opium, being fairly quick and moderately soft; and below, in contrast with this, the pulse of what I have called the opium rebound; and it is well known that if a single dose of opium is taken, there will come in the following twelve hours a feeling of headache, depression, malaise, and if the pulse is then examined, it will be found to be slow and will yield tracings such as those in the lower part of B.

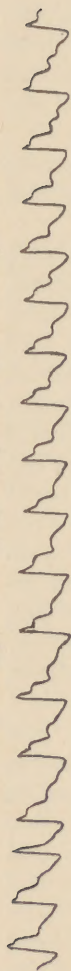
I have elsewhere* pointed out the way in which opium acts in causing, first, relaxed arterioles and low tension, and then a rebound, with contracted arterioles and high tension, and also the way in which this latter condition may be avoided.

In the two middle tracings at the lower part of B there is a further point of interest, as the pulse is irregular, with imperfect systoles in the upper and drops a beat in the lower, thus demonstrating, as I believe, how great a trial this high blood-pressure is to the power and regularity of the heart's action.

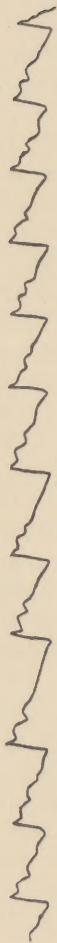
And this constitutes, to my mind, the great

* "Influence of Opium and Morphine on Uric Acid" (*Brit. Med. Journ.*, 1889, vol. ii.), and "Uric Acid," second edition, p. 33.

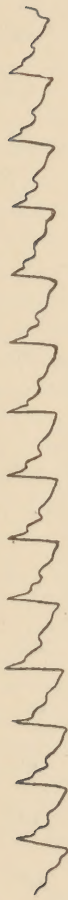
B. Well being produced by opium; pulse, 76; low blood-pressure.



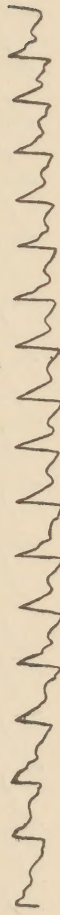
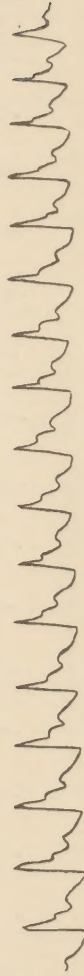
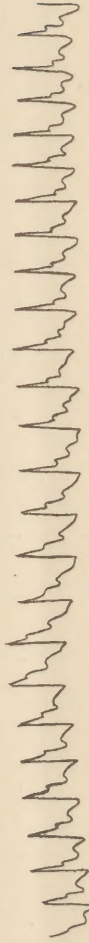
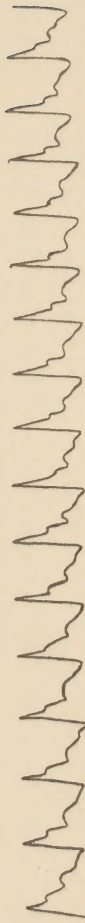
Rebound after opium; pulse, 58, 65, and 68; high blood pressure.



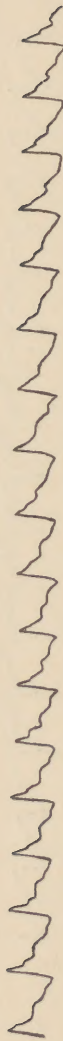
A. A fairly normal pulse tracing rendered quick.



Effects of exercise.



C. Soft pulse under iodides; blood-pressure low.



A. H., November 13, 1892, 11.20 A.M.; rate, 92.



A. H., November 14, 1892, 11.20 A.M.; rate, 90, soft; well-being of iodides taken yesterday continues.



A. H., November 15, 1892, 11.20 A.M.; rate, 86; tension slight; second day after iodides. Threats of rebound each morning early, going off later on.

Same under iodide of ethyl.



First after capsule, second; pulse-rate, 85.

drawback to the use of opium in morbus cordis, that when you reduce the dose or leave it off, you will get a rebound with very high blood-pressure, which is a dangerous condition, rendering the patient liable to heart-failure, on the one hand, or rupture of a vessel in the brain, on the other.

C shows the effects of the iodides ; the three upper tracings of iodide of potassium and sodium, and the bottom one of the inhalation of iodide of ethyl.

The second and third tracings are given to show that the effect of an iodide given on the thirteenth day continues on the fourteenth and fifteenth, and this is, I think, the most important point about the reduction of blood-pressure by iodides, that it is fairly steady and continues for some considerable time.

The iodides, however, like opium, are followed by a rebound, but this rarely gives much trouble till they have been taken for weeks or perhaps months, and meanwhile the heart's nutrition ought to have very greatly improved.

The rebound after iodides can be prevented just like that after opium, and by the same means ; and in cases such as those of chronic Bright's disease, which often have to take these drugs for years, it is necessary to do this now and again from time to time by giving a short course of salicylate of sodium to carry off the accumulated uric acid (see previous references in the case of opium).

With regard to the cases in which drugs that lower the blood-pressure are of use, we may divide morbus cordis into two large groups :

A, those in which the heart fails on account

of valvular, pericardial, or other mechanical lesion of its structure.

B, those in which it fails mainly on account of excess of work from contracted arterioles and high blood-pressure.

A includes most cases of rheumatic morbus cordis as met with in early life, and here digitalis finds its most useful field; but even here there are not a few cases in which it is an advantage to combine with the digitalis some drug, as an iodide, which will insure that the arterioles are not adding to the heart's troubles by undue contraction.

B includes the morbus cordis of advanced life, which originates more often in high blood-pressure than in rheumatism, and here digitalis, with its power of adding to the contraction of arterioles, may be decidedly harmful, while the iodides, which relax the arterioles and lower blood-pressure, find their greatest utility.

I could easily give more cases of these conditions than you would have time to listen to; but as my special object is to point out the utility of drugs that lower the blood-pressure, I shall content myself with pointing out the chief clinical features of cases in Class B, in which they are specially useful.

A patient in middle life, or past it, complains of irregularity or intermission of the heart's action, perhaps of pain in the chest or shoulders; the pain may be worse on exertion and the breath rather short.

There may be slight œdema of the ankles, slight enlargement of the liver.

On examining the chest, the second sound of the heart is decidedly loud both over the aortic area and at the apex, and in later stages

the loud second sound may be followed by the whiff of aortic regurgitation. The apex is somewhat displaced to the left and is ill defined ; the first sound is long, or it may be reduplicated, or followed by a murmur of mitral regurgitation, due to dilatation and slight incompetence of the mitral valves.

The pulse-rate may have been slow, but with the general signs of cardiac dilatation and failure it has probably quickened up to 80 or 90, and yet the second sound is decidedly loud and the first sound long or reduplicated at the apex.

There is no history of acute rheumatism, and the whole of the circulatory troubles may be the result of more or less chronic contraction of arterioles and high blood-pressure so common at this time of life, and occurring either as the initial stage of Bright's disease (pre-albuminuric stage of Mahomed) or in its course.

The obvious indication is at once to relax the arterioles and lower the blood-pressure, and if you are able to do this and keep the arterioles relaxed for a considerable time, you may find that the heart not only completely recovers itself, but that you have at the same time prevented or greatly delayed the appearance of the more definite symptoms of Bright's disease.

The action of iodides, opium, etc., on the blood-pressure and the heart's action has, I am aware, been pointed out by many people, both in this country and abroad ; but I alone have been able to give an explanation of their action which applies not only to the iodides, but also to a large number of drugs which may be relied on to produce almost equally good results in mor-

bus cordis, and my knowledge of their action also enables me to prevent them doing harm when the rebound occurs.

I have also been able to explain completely why a diet in which milk is the only animal food is (as has long been known) so great a help to the drugs in keeping the blood-pressure low.

I conclude, then, that in the morbus cordis of middle or later life there are no more important drugs than those which, like the iodides, relax the arterioles and lower the blood-pressure; while those, like digitalis, which contract the arterioles and raise the blood-pressure may do great harm.

The one danger in the use of the drugs which relax the arterioles is that their sudden intermission may cause extreme contraction of arterioles and very high pressure, as exemplified in the case of opium; but when their mode of action is kept in mind, such cause of danger can generally be prevented, and if the diet is also altered, very high blood-pressure can be rendered practically impossible for the future.

Haig, A.

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EDWARD MARTIN, M.D.,

Chief of Professor of Genito-Urinary Diseases, University of Pennsylvania.

EDITORIAL OFFICE, 222 South Fifteenth St., Philadelphia, U.S.A.



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